

CALIFORNIA

OCCUPATIONAL GUIDES

ACTUARIES

CALIFORNIA OCCUPATIONAL GUIDE - NUMBER 318
2003

INTEREST AREA
CONVENTIONAL



WHAT DOES AN ACTUARY DO?

ACTUARIES use math and statistics to estimate the financial impact of events such as fire, sickness, disability, and death. This information allows Actuaries to design and evaluate insurance, annuity, and pension plans. The main areas in which Actuaries specialize are life insurance, property and casualty insurance, health, or pensions and benefits. Many Actuaries work for large insurance companies and government agencies concerned with employee retirement pension programs. However, a growing number of Actuaries work as independent contractors for small insurance firms, unions, or brokers. Actuaries must keep up with legislative, economic, social, medical, and other trends that affect insurance practices.

Actuaries perform the following tasks:

- Analyze statistical information to estimate fire, sickness, disability, and retirement rates.
- Calculate the possibility of death, disability, injury, unemployment, retirement, and property loss.
- Develop insurance plans and calculate profitable, competitive insurance premium levels.
- Determine policy contract provisions for each type of insurance.
- Review claims activity to see if premiums are adequate to cover losses.
- Determine the amount of cash reserves needed to assure payments of benefits.
- Work closely with programmers, underwriters, accountants, claims experts, and senior management.

WHAT SKILLS ARE IMPORTANT?

Important skills, knowledge, and abilities for Actuaries include:

- Mathematics – Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Economics and Accounting – Knowledge of economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.

- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Mathematical Reasoning – The ability to choose the right mathematical methods or formulas to solve a problem.
- Reading Comprehension – Understanding written sentences and paragraphs in work-related documents.

WHAT'S THE WORK ENVIRONMENT?

Most Actuaries are based in headquarters and work in office environments common to banks and insurance companies. Independent Actuaries work in their own offices, but are likely to spend much of their time in the field with clients. Traveling to visit clients and branch offices and to attend professional meetings may be required.

Union Membership

There is little or no unionization of the actuarial profession. Actuaries typically belong to professional associations such as Society of Actuaries, Casualty Actuarial Society, American Society of Pension, and Pension Actuaries.

WHAT'S THE CALIFORNIA JOB OUTLOOK?

According to the Occupational Employment Statistics Survey, employment in 2001 for Actuaries was estimated to be 800 in California. In 2001, the State of California had 28 employees in actuary and supervising actuary jobs in four departments.

Trends

The current supply of Actuaries is expected to meet employer demands.

WHAT DOES THE JOB PAY?

California Earnings

Actuaries 2002 Wages	
Hourly wages range from	\$25.98 to \$50.38
Average hourly wage	\$38.34
Average annual wage	\$79,750

Source: *Occupational Employment Survey of Employers* by EDD/LMID.

Salaries vary with educational levels and experience. Actuaries are typically given merit increases as they gain experience and pass successive examinations.

Hours

Actuaries work a five-day week, averaging 35 to 40 hours.

Benefits

Common benefits include sick leave, vacation, and holidays, medical, dental and vision insurance, and retirement.

HOW DO I PREPARE FOR THE JOB?

Education and Training

Most employers require a Bachelor's degree in mathematics or statistics, preferably with a specialty in actuarial science. Some companies will accept a major in economics or business administration if the applicant has a strong background in calculus and statistics. Courses in insurance law, economics, accounting, computer science, speech, and effective writing are also helpful. High school students should take advanced math and computer science courses to prepare for this occupation.

It usually takes five to ten years to complete the series of nine or ten exams required for the full professional status as an Actuary. Actuarial students should take the first two or three exams while still in college to qualify for higher starting salaries with employers.

To become associates, Actuaries must pass seven exams given by the Society of Actuaries, the Casualty Actuarial Society, or the American Society of Pension Actuaries. The Casualty Actuarial Society also requires the completion of a course on professionalism. After Actuaries gain a few years of experience and pass the additional fellowship exams, they receive full membership and the title of fellow of their society. Candidates for careers in pension planning need to pass a separate actuarial exam to become an Enrolled Actuary.

Licensing and Certification

The California Department of Insurance requires individuals involved in the sale or development of specified insurance products to obtain an insurance license. The licensing requirements vary widely depending on the individual's insurance specialization and the number of actuarial exams an individual has successfully passed. Individuals should contact the Department of Insurance for more specific licensing information.

Continuing Education

The Society of Actuaries and the Casualty Actuarial Society provide extensive continuing educational services to their members. These organizations provide courses on topics of interest to the actuarial professional as well as courses on how to prepare for the professional examinations administered by both organizations. The federal Treasury Department Joint Board of Enrolled Actuaries requires the completion of 36 hours of continuing education every three years to qualify for renewal of enrollment for those practicing under the Employee Retirement Income Security Act.

HOW DO I FIND THE JOB?

Direct application to employers remains one of the most effective job search methods. Private firms are listed in the yellow pages under Actuaries and Insurance. California job openings can be found at various online job-listing systems including CalJOBSSM at www.caljobs.ca.gov or at America's Job Bank at www.ajb.dni.us.

For other occupational and wage information and a listing of the largest employers in any county, visit the Employment Development Department Labor Market Information Web page at www.calmis.ca.gov. Find further job search assistance from your nearest Job Service office www.edd.ca.gov/jsloc.htm or the closest One-Stop site listed on the California WorkNet site, www.sjtcc.ca.gov/sjtccweb/one-stop.

WHERE CAN THIS JOB LEAD?

Actuaries with extensive work experience who successfully complete a series of professional examinations develop a broad knowledge of business practices that allow them to easily promote into general management and executive leadership positions.

OTHER SOURCES OF INFORMATION

Society of Actuaries
475 North Martingale, Suite 800
Schaumburg, IL 60173
(847) 706-3500
www.soa.org

Casualty Actuarial Society
1100 North Glebe Road, Suite 600
Arlington, VA 22201
(703) 276-3100
www.casact.org

American Society of Pension Actuaries
4245 North Fairfax Drive, Suite 750
Arlington, VA 22203
(703) 516-9300
www.aspa.org

California Department of Insurance
320 Capitol Mall
Sacramento, CA 95814
(916) 322-3555
www.insurance.ca.gov

Employment Projections by Occupation
www.calmis.ca.gov/htmlfile/subject/occproj.htm

Employment and Wages by Occupation
[www.calmis.ca.gov/file/occup\\$/OES\\$.htm](http://www.calmis.ca.gov/file/occup$/OES$.htm)

RELATED OCCUPATIONAL GUIDES

Insurance Underwriters	No. 5
Mathematicians	No. 66
Insurance Adjusters, Examiners, and Investigators	No. 67
Statisticians	No. 300

OCCUPATIONAL CODE REFERENCES**SOC** (*Standard Occupational Classification*)

Actuaries 15-2011

O*NET (*Occupational Information Network*)

Actuaries 15-2011.00

OES (*Occupational Employment Statistics*)

Actuaries 25313

DOT (*Dictionary of Occupational Titles*)

Actuary 020.167-010